CLAIMS

What is claimed is:

1. A wind turbine comprising:

one or more sensors to detect radial displacement of a shaft from a predetermined positions; and

a control circuit coupled with the one or more sensors to mitigate load causing the deflection on the one or more components in response to signals from the one or more sensors.

2. The wind turbine of claim 1 wherein the control circuits mitigates bending loads on the shaft by controlling pitch of one or more wind turbine blades.

3. The wind turbine of claim 1 wherein the one or more components comprise a main shaft of the wind turbine.

4. The wind turbine of claim 1 wherein the one or more sensors comprises a set of proximity sensors facing the shaft to detect displacement of the shaft with respect to a relatively non-deflecting component.

5. The wind turbine of claim 4 wherein the set of sensors comprises two proximity sensors facing the shaft, and further wherein the two sensors are approximately 90° apart with respect to the axis of the shaft.

6. The wind turbine of claim 4 wherein the set of sensors comprises four proximity sensors facing the shaft, and further wherein the four sensors are approximately 90° apart with respect to the axis of the shaft.

7. The wind turbine of claim 4 wherein the set of sensors comprises two pairs of proximity sensors facing the shaft, and further wherein the two pairs of sensors are approximately 90° apart with respect to the axis of the shaft.

8. A wind turbine comprising:

means for detecting radial displacement of a shaft of the wind turbine; and

means for mitigating a load causing the displacement of the shaft in response to the measurement of the shaft displacement.

9. The wind turbine of claim 8 wherein the means for mitigating the load compromises means for controlling pitch of one or more blades.

10. The wind turbine of claim 8 wherein the shaft comprises a main shaft.

11. A method comprising:

receiving signals from one or more sensors indicating radial displacement of a shaft of a wind turbine;

determining a load placed on the wind turbine based on the signals from the one or more sensors; and

causing one or more blades of the wind turbine to change pitch based on the determined load.

12. The method of claim 11 wherein the shaft comprises a main shaft.

13. The method of claim 11 wherein the one or more sensors detect radial displacement of the shaft from an at rest position.

14. The method of claim 11 wherein the one or more sensors comprises a set of proximity sensors facing the shaft to detect displacement of the shaft.

15. The method of claim 14 wherein the set of sensors comprises two proximity sensors facing the shaft, and further wherein the two sensors are approximately 90° apart with respect to the axis of the shaft.

16. The method of claim 14 wherein the set of sensors comprises four proximity sensors facing the shaft, and further wherein the four sensors are approximately 90° apart with respect to the axis of the shaft.

17. The method of claim 14 wherein the set of sensors comprises two pairs of proximity sensors facing the shaft, and further wherein the two pairs of sensors are approximately 90° apart with respect to the axis of the shaft.

18. An article comprising an electronically-readable medium having stored thereon instructions that, when executed, cause one or more processors to:

receive signals from one or more sensors indicating radial displacement of a shaft of a wind turbine;

determine a load placed on the wind turbine based on the signals from the one or more sensors; and

cause one or more blades of the wind turbine to change pitch based on the determined load.

19. The article of claim 18 wherein the shaft comprises a main shaft.

20. The article of claim 18 wherein the one or more sensors detect radial displacement of the shaft from an at rest position.

21. The article of claim 18 wherein the one or more sensors comprises a set of proximity sensors connected to the shaft to detect displacement of the shaft.

22. The article of claim 21 wherein the set of sensors comprises two proximity sensors facing the shaft, and further wherein the two sensors are approximately 90° apart with respect to the axis of the shaft.

23. The article of claim 21 wherein the set of sensors comprises four proximity sensors facing the shaft, and further wherein the four sensors are approximately 90° apart with respect to the axis of the shaft.

24. The article of claim 21 wherein the set of sensors comprises two pairs of proximity sensors facing the shaft, and further wherein the two pairs of sensors are approximately 90° apart with respect to the axis of the shaft.